

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 1

Run Number 1

6/19/2019 - 6/20/2019

EPA Method # 5 & 14

METER VOLUME	1124.815	CU. FT.
SQUARE ROOT OF DELTA P	0.337	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.934	IN. WATER
METERED GAS TEMPERATURE	66.3	DEG. F
STATIC PRESSURE IN STACK	-0.31	IN. WATER
STACK TEMPERATURE	100.3	DEG. F
BAROMETRIC PRESSURE	29.44	IN. Hg
PROBE TIP DIAMETER	0.3655	INCHES
GAS METER CORRECTION FACTOR	0.993	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	445.9	GRAMS
MOLECULAR WEIGHT	28.9	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
TOTAL PARTICULATE COLLECTED	0.0529	GRAMS
GASEOUS FLUORIDE COLLECTED	0.01225	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.00739	GRAMS
AVG ALUMINUM PRODUCTION RATE	417389	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	101.6	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	111.6	DEG. F
AVERAGE ROOF EXIT VELOCITY	95.7	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	107.0	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	6112168	ACFM/LINE
VOLUME GAS SAMPLED	1108.452	SCF
MOISTURE IN STACK GAS	1.858	%
VELOCITY OF STACK GAS (ACTUAL)	1184	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1346	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	101.31	%
VOLUMETRIC FLOWRATE OUT ROOF	5496351	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	105.02	%
SECONDARY PARTICULATE CONCENTRATION	0.0017	GRAMS/SCM
SECONDARY PARTICULATE CONCENTRATION	0.00074	GRAINS/SCF
SECONDARY PARTICULATE EMISSION	34.70	LBS./HR.
SECONDARY PARTICULATE EMISSION	3.99	LBS./TON
PRIMARY PARTICULATE EMISSION	2.49	LBS./TON
PRIMARY AND SECONDARY PARTICULATE EMITTED	6.48	LBS./TON
GASEOUS FLUORIDE CONCENTRATION	0.390	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000171	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.235	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000103	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	0.626	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000273	GRAINS/SCF
TOTAL FLUORIDE EMISSION	12.882	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	8.70	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	1.481	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.674	LBS./TON
TOTAL PRIMARY AND SECONDARY FLUORIDE EMITTED	2.155	LBS./TON

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 1

Run Number 1

9/26/2019 - 9/27/2019

EPA Method # 14

METER VOLUME	1103.545	CU. FT.
SQUARE ROOT OF DELTA P	0.393	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.879	IN. WATER
METERED GAS TEMPERATURE	70.1	DEG. F
STATIC PRESSURE IN STACK	-0.44	IN. WATER
STACK TEMPERATURE	88.7	DEG. F
BAROMETRIC PRESSURE	29.59	IN. Hg
PROBE TIP DIAMETER	0.3327	INCHES
GAS METER CORRECTION FACTOR	0.988	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	373.7	GRAMS
MOLECULAR WEIGHT	29.0	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
GASEOUS FLUORIDE COLLECTED	0.02593	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.01474	GRAMS
AVG ALUMINUM PRODUCTION RATE	338139	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	82.1	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	95.3	DEG. F
AVERAGE ROOF EXIT VELOCITY	103.4	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	94.5	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	6603952	ACFM/LINE
VOLUME GAS SAMPLED	1079.017	SCF
MOISTURE IN STACK GAS	1.604	%
VELOCITY OF STACK GAS (ACTUAL)	1360	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1590	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	100.74	%
VOLUMETRIC FLOWRATE OUT ROOF	6119211	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	148.04	%
GASEOUS FLUORIDE CONCENTRATION	0.967	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000423	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.550	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000240	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	1.517	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000663	GRAINS/SCF
TOTAL FLUORIDE EMISSION	34.785	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	7.04	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	5.079	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.674	LBS./TON
TOTAL FLUORIDE EMITTED	5.753	LBS./TON

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 1

Run Number 2

10/10/2019 - 10/11/2019

EPA Method # 5 & 14

METER VOLUME	1012.381	CU. FT.
SQUARE ROOT OF DELTA P	0.300	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.576	IN. WATER
METERED GAS TEMPERATURE	74.2	DEG. F
STATIC PRESSURE IN STACK	-0.26	IN. WATER
STACK TEMPERATURE	100.7	DEG. F
BAROMETRIC PRESSURE	29.64	IN. Hg
PROBE TIP DIAMETER	0.3666	INCHES
GAS METER CORRECTION FACTOR	0.988	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	383.4	GRAMS
MOLECULAR WEIGHT	29.0	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
TOTAL PARTICULATE COLLECTED	0.0443	GRAMS
GASEOUS FLUORIDE COLLECTED	0.01218	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.00702	GRAMS
AVG ALUMINUM PRODUCTION RATE	408891	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	147.2	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	113.3	DEG. F
AVERAGE ROOF EXIT VELOCITY	140.7	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	108.0	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	8986227	ACFM/LINE
VOLUME GAS SAMPLED	983.198	SCF
MOISTURE IN STACK GAS	1.802	%
VELOCITY OF STACK GAS (ACTUAL)	1048	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1199	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	100.26	%
VOLUMETRIC FLOWRATE OUT ROOF	8126040	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	64.30	%
SECONDARY PARTICULATE CONCENTRATION	0.0016	GRAMS/SCM
SECONDARY PARTICULATE CONCENTRATION	0.00070	GRAINS/SCF
SECONDARY PARTICULATE EMISSION	48.43	LBS./HR.
SECONDARY PARTICULATE EMISSION	5.69	LBS./TON
PRIMARY PARTICULATE EMISSION	2.49	LBS./TON
PRIMARY AND SECONDARY PARTICULATE EMITTED	8.18	LBS./TON
GASEOUS FLUORIDE CONCENTRATION	0.437	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000191	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.252	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000110	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	0.690	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000301	GRAINS/SCF
TOTAL FLUORIDE EMISSION	20.990	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	8.52	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	2.464	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.674	LBS./TON
TOTAL PRIMARY AND SECONDARY FLUORIDE EMITTED	3.138	LBS./TON

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 1

Run Number 3

11/20/2019 - 11/21/2019

EPA Method # 5 & 14

METER VOLUME	973.135	CU. FT.
SQUARE ROOT OF DELTA P	0.337	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.406	IN. WATER
METERED GAS TEMPERATURE	78.5	DEG. F
STATIC PRESSURE IN STACK	-0.34	IN. WATER
STACK TEMPERATURE	84.3	DEG. F
BAROMETRIC PRESSURE	29.76	IN. Hg
PROBE TIP DIAMETER	0.3326	INCHES
GAS METER CORRECTION FACTOR	0.987	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	88.3	GRAMS
MOLECULAR WEIGHT	28.8	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
TOTAL PARTICULATE COLLECTED	0.0512	GRAMS
GASEOUS FLUORIDE COLLECTED	0.00997	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.00683	GRAMS
AVG ALUMINUM PRODUCTION RATE	411808	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	99.8	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	94.7	DEG. F
AVERAGE ROOF EXIT VELOCITY	82.9	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	89.2	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	5294658	ACFM/LINE
VOLUME GAS SAMPLED	939.971	SCF
MOISTURE IN STACK GAS	0.440	%
VELOCITY OF STACK GAS (ACTUAL)	1158	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1389	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	100.48	%
VOLUMETRIC FLOWRATE OUT ROOF	5040749	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	104.47	%
SECONDARY PARTICULATE CONCENTRATION	0.0019	GRAMS/SCM
SECONDARY PARTICULATE CONCENTRATION	0.00084	GRAINS/SCF
SECONDARY PARTICULATE EMISSION	36.32	LBS./HR.
SECONDARY PARTICULATE EMISSION	4.23	LBS./TON
PRIMARY PARTICULATE EMISSION	2.49	LBS./TON
PRIMARY AND SECONDARY PARTICULATE EMITTED	6.72	LBS./TON
GASEOUS FLUORIDE CONCENTRATION	0.375	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000164	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.257	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000112	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	0.631	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000276	GRAINS/SCF
TOTAL FLUORIDE EMISSION	11.917	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	8.58	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	1.389	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.674	LBS./TON
TOTAL PRIMARY AND SECONDARY FLUORIDE EMITTED	2.063	LBS./TON